

What is claimed is:

1. A method of providing network access across a shared communications medium between competing users, comprising the steps of:
 - (a) monitoring network access usage by each user during a time interval;
 - 5 (b) based on said monitoring, forecasting network access usage by each user over a future time interval;
 - (c) prioritizing users based on each user's forecasted network access usage in increasing order, whereby a user with a lesser forecasted network access usage receives a higher priority than a user with a greater forecasted network access usage; and
 - 10 (d) allocating network access available to each user during the future time interval in decreasing order of user priority, each user's allocation of network access being equal to each user's forecasted network access usage subject to a respective, predetermined maximum value and subject to availability.
 - 15
2. The method of claim 1, wherein said step of allocating further comprises allocating any surplus network access remaining equally to the users.
3. The method of claim 1, wherein said step of allocating further comprises allocating in decreasing user priority any surplus network access to the users proportionally to the user's forecasted network access usage.
- 20 4. The method of claim 1, wherein network access comprises bandwidth across the shared communications medium for consumption by each user in conveying data of the user.

5. The method of claim 1, wherein said step of monitoring comprises monitoring network access usage by the users in an upstream direction at time intervals of one minute to fifteen minutes.

6. The method of claim 1, wherein said step of monitoring comprises monitoring network access usage by the users in a downstream direction at time intervals of fifteen minutes to sixty minutes.

7. The method of claim 1, wherein the time interval for which network access usage is monitored and the future time interval are equal in length.

8. The method of claim 1, wherein the time interval for which network access usage is monitored and the future time interval each is approximately one minute to sixty minutes in length.

9. The method of claim 1, wherein said step of monitoring network access usage includes collecting data representative of the number of logical data units transmitted from and to each user during a time interval.

10. The method of claim 1, wherein said step of monitoring network access usage includes collecting data representative of the number of bytes and data packets transmitted from and to each user during a time interval.

11. The method of claim 1, wherein said step of monitoring network access usage includes collecting data representative of the number of logical data units of the user that are dropped during a time interval.

12. The method of claim 1, wherein said step of monitoring network access usage includes collecting data representative of the number of bytes and data packets of the user that are dropped during a time interval.

13. The method of claim 1, wherein said step of monitoring network access usage includes collecting data representative of the number of logical data units of the

user that are requested to be transmitted in the upstream direction during a time interval.

14. The method of claim 1, wherein the shared communications medium is part of a Shared Access Carrier Network.

5 15. The method of claim 14, wherein the Shared Access Carrier Network comprises a Cable Network and the shared communications medium comprises a coaxial cable.

16. The method of claim 14, wherein the Shared Access Carrier Network comprises a wireless network.

10 17. A method of providing network access across a shared communications medium between competing users, comprising the steps of:

- 15 (a) monitoring network access usage by each user during a time interval;
- (b) based on said monitoring, forecasting network access usage by each user over a future time interval; and
- (c) allocating network access available to each user during the future time interval, each user's allocation of network access being equal to each user's forecasted network access usage multiplied by a ratio of the total available network access to the total forecasted network access usage of all the users, and subject to a respective, predetermined maximum value and subject to availability.
- 20

18. The method of claim 17, wherein network access comprises bandwidth across the shared communications medium for consumption by each user in conveying data of the user.

19. The method of claim 17, wherein said step of monitoring comprises monitoring network access usage by the users in an upstream direction at time intervals of one minute to fifteen minutes.
20. The method of claim 17, wherein said step of monitoring comprises monitoring network access usage by the users in a downstream direction at time intervals of fifteen minutes to sixty minutes.
21. The method of claim 17, wherein the time interval for which network access usage is monitored and the future time interval are equal in length.
22. The method of claim 17, wherein the time interval for which network access usage is monitored and the future time interval each is approximately one minute to sixty minutes in length.
23. The method of claim 17, wherein said step of monitoring network access includes collecting data representative of the logical data units transmitted from and to each user during a time interval.
24. The method of claim 17, wherein said step of monitoring network access usage includes collecting data representative of the number of bytes and data packets transmitted from and to each user during a time interval.
25. The method of claim 17, wherein said step of monitoring network access usage includes collecting data representative of the number of logical data units of the user that are dropped during a time interval.
26. The method of claim 17, wherein said step of monitoring network access usage includes collecting data representative of the number of bytes and data packets of the user that are dropped during a time interval.
27. The method of claim 17, wherein said step of monitoring network access usage includes collecting data representative of the number of logical data units of the

user that are requested to be transmitted in the upstream direction during a time interval.

28. The method of claim 17, wherein the shared communications medium is part of a Shared Access Carrier Network.

5 29. The method of claim 28, wherein the Shared Access Carrier Network comprises a Cable Network and the shared communications medium comprises a coaxial cable.

30. The method of claim 28, wherein the Shared Access Carrier Network comprises a wireless network.

10 31. A method of providing network access across a shared communications medium between competing users, comprising the steps of:

- 15
- (a) charging each user a respective fee for network access usage;
 - (b) monitoring network access usage by each user during a time interval;
 - (c) based on said monitoring, forecasting network access usage by each user over a future time interval;
 - (d) prioritizing users based on each user's fee in decreasing order, whereby a user having a greater fee receives a higher priority than a user having a lesser fee; and
 - (e) allocating network access available to each user during the future time
- 20 interval in decreasing order of user priority, each user's allocation of network access being equal to each user's forecasted network access usage subject to a respective, predetermined maximum value and subject to availability.

32. The method of claim 31, wherein network access comprises bandwidth across the shared communications medium for consumption by each user in conveying data of the user.

33. The method of claim 31, wherein said step of monitoring comprises monitoring network access usage by the users in an upstream direction at time intervals of one minute to fifteen minutes.

34. The method of claim 31, wherein said step of monitoring comprises monitoring network access usage by the users in a downstream direction at time intervals of fifteen minutes to sixty minutes.

35. The method of claim 31, wherein the time interval for which network access usage is monitored and the future time interval are equal in length.

36. The method of claim 31, wherein the time interval for which network access usage is monitored and the future time interval each is approximately one minute to sixty minutes in length.

37. The method of claim 31, wherein said step of monitoring network access includes collecting data representative of the number of logical data units transmitted from and to each user during a time interval.

38. The method of claim 31, wherein said step of monitoring network access usage includes collecting data representative of the number of bytes and data packets transmitted from and to each user during a time interval.

39. The method of claim 31, wherein said step of monitoring network access usage includes collecting data representative of the number of logical data units of the user that are dropped during a time interval.

40. The method of claim 31, wherein said step of monitoring network access usage includes collecting data representative of the number of bytes and data packets of the user that are dropped during a time interval.

41. The method of claim 31, wherein said step of monitoring network access usage includes collecting data representative of the number of logical data units of the user that are requested to be transmitted in the upstream direction during a time interval.

42. The method of claim 31, wherein the shared communications medium is part of a Shared Access Carrier Network.

43. The method of claim 42, wherein the Shared Access Carrier Network comprises a Cable Network and the shared communications medium comprises a coaxial cable.

44. The method of claim 42, wherein the Shared Access Carrier Network comprises a wireless network.

45. A method of providing network access across a shared communications medium between competing users, comprising the steps of:

- (a) applying respective credits to users for network access shortfalls below respective levels of network access specified to the users;
- (b) monitoring network access usage by each user during a past time interval;
- (c) based on said monitoring, forecasting network access usage by each user over a future time interval;
- (d) prioritizing users based on each user's respective credit in decreasing order, whereby a user having a greater credit receives a higher priority than a user having a lesser credit; and

(e) allocating network access available to each user during the future time interval in decreasing order of user priority, each user's allocation of network access being equal to each user's forecasted network access usage subject to a respective, predetermined maximum specified value and subject to availability.

46. The method of claim 45, wherein any additional network access remaining after said allocation is earmarked for the users such that each user's allocation equals the user's forecasted network access usage, subject to a respective, predetermined maximum allowed level of network access and subject to availability.

47. The method of claim 46, wherein any surplus network access remaining after said distribution is further earmarked in equal amounts for the users, subject to a respective, predetermined maximum allowed level of network access.

48. The method of claim 46, further comprising allocating to the users network access only in an amount equal to the forecasted network access usage multiplied by the ratio of total network access available for allocation to the total forecasted network access usage of the users, but only when the total forecasted network access usage of the users exceeds the total network access available for allocation.

49. The method of claim 45, wherein network access comprises bandwidth across the shared communications medium for consumption by each user in conveying data of the user.

50. The method of claim 45, wherein said step of monitoring comprises monitoring network access usage by the users in an upstream direction at time intervals of one minute to fifteen minutes.

51. The method of claim 45, wherein said step of monitoring comprises monitoring network access by the users in a downstream direction at time intervals of fifteen minutes to sixty minutes.

52. The method of claim 45, wherein the time interval for which network access usage is monitored and the future time interval are equal in length.

53. The method of claim 45, wherein the time interval for which network access usage is monitored and the future time interval each is approximately one minute to sixty minutes in length.

54. The method of claim 45, wherein said step of monitoring network access usage includes collecting data representative of the number of logical data units transmitted from and to each user during a time interval.

55. The method of claim 45, wherein said step of monitoring network access usage includes collecting data representative of the number of bytes and data packets transmitted from and to each user during a time interval.

56. The method of claim 45, wherein said step of monitoring network access usage includes collecting data representative of the number of logical data units of each user that are dropped during a time interval.

57. The method of claim 45, wherein said step of monitoring network access usage includes collecting data representative of the number of bytes and data packets of each user that are dropped during a time interval.

58. The method of claim 45, wherein said step of monitoring network access usage includes collecting data representative of the number of logical data units of each user that are requested to be transmitted in the upstream direction during a time interval.

59. The method of claim 45, wherein the shared communications medium is part of a Shared Access Carrier Network.

60. The method of claim 59, wherein the Shared Access Carrier Network comprises a Cable Network and the shared communications medium comprises a coaxial cable.

61. The method of claim 59, wherein the Shared Access Carrier Network comprises a wireless network.